

FINAL EXAM REVIEW

QUADRATIC FUNCTIONS

1. The shape a quadratic function makes is a _____. The maximum or minimum point of a quadratic function is called the _____.

2. What does a solution/root/zero look like on a graph?

3. The formula to find the axis of symmetry is $x =$ _____

4. The quadratic formula is $x =$ _____. It finds the _____.

5. Tell whether the discriminant, $b^2 - 4ac$, must be greater than, less than, or equal to 0 to make each of the conditions true:

A. 2 x-intercepts

B. 1 x-intercept

C. no x-intercepts

1 2 3 4 5
perfect! so-so definitely need to re-learn this for the test!

6. Make a table of values for $y = (3x - 1)^2$

x	f(x)
-2	
-1	
0	
1	
2	

7. The height, d , of an object after t seconds is modeled by the equation $d = -16t^2 + 3500$. Find the height of the object after 3 seconds.

8. Find the vertex of $y = -3x^2 + 12x - 8$

9. Find the vertex of $y = \frac{2}{3}(x - 2)^2 - 4$

10. List the value of a and c , and describe how each of these values transforms the graph.
 $y = -5x^2 + 8$

11. Write the equation of the quadratic function with a vertex of $(3, 5)$ through the point $(2, 9)$.

1 2 3 4 5

12. Expand $(2x + 3)(x - 1)$

13. Factor $x^2 + 3x - 10$

14. Find the solutions of $2x^2 + 9x = 18$ using the method of your choice.

1 2 3 4 5

15. $i = ?$ $i^2 = ?$

16. Simplify $\sqrt{-64}$

17. $(-2-i)(4+i)$

18. Solve $x^2 + 4 = 0$

1 2 3 4 5

Overall rating for quadratic functions 1 2 3 4 5

EXPONENTIAL FUNCTIONS

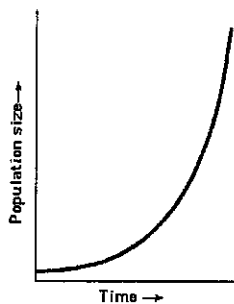
1. An exponential function takes the form $f(x) =$ _____, where a represents _____ and b represents _____.

2. If $b > 1$, the function is classified as _____ and if $0 < b < 1$, the function is classified as _____.

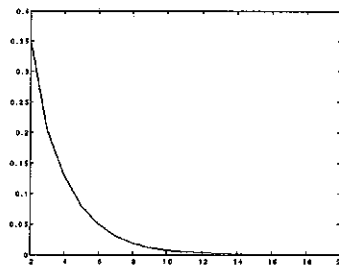
1 2 3 4 5

Are the following exponential growth or decay?

3.



4.



5.

x	y
-1	27
0	9
1	3

6. $y = -\frac{1}{3}(4)^x$

7. $y = 60(.4)^x$

1 2 3 4 5

Write the equation of the exponential function that models each situation.

8. A scientist starts with 150 bacteria that double in population every three days. Write an equation $b(d)$ to model the number of bacteria, b , after d days.
9. I have \$2500 in a mutual fund that earns 7% every three months.
10. After the zombie antidote comes out, the 10,000 zombies begin to die out at a rate of 12% each day.
11. I have 80 gummy bears and every time I go to the cupboard I eat half of the gummies.

1 2 3 4 5

Find x .

12. $8^{3x-5} = 8^4$

13. $2^{6x-2} = 1$

14. $5^{-2x+1} = 125$

1 2 3 4 5

15. Make a table for $f(x) = 4^{-x} + 1$

x	-2	-1	0
$f(x)$			

Overall rating for exponential functions 1 2 3 4 5

TRIGONOMETRY

1. I can only use the Pythagorean Theorem and trig functions if I have a _____ triangle.
2. A good first step to any problem that uses a trig function is to _____ the sides.
3. The nine letter device that is used to help me remember the definitions of sine, cosine, and tangent is _____ - _____ - _____.
4. The longest leg of a triangle is called the _____.
5. An angle can either be measured in _____ or _____.
6. The height of a wave is called the _____ and how long it takes before the wave repeats is called the _____.

1 2 3 4 5

7. Convert $\frac{3\pi}{7}$ radians to degrees.

8. Convert 80° to radians

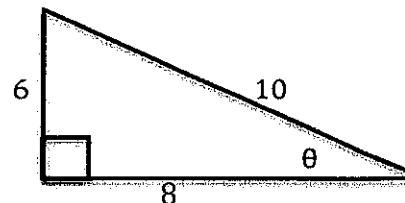
1 2 3 4 5

9. For the right triangle and angle indicated, label which side is the hypotenuse, opposite and adjacent.



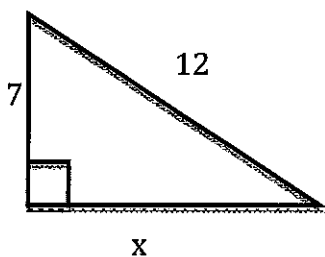
10. For the triangle to the right, find the value of the six trig functions.

1 2 3 4 5

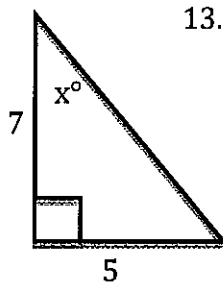


Find the missing angle or side length.

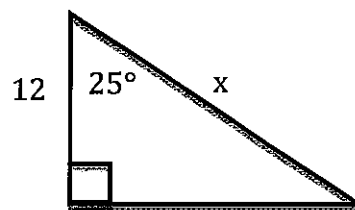
11.



12.



13.



1 2 3 4 5

14. A 30 ft ladder sits against a wall with an angle of elevation of 15 degrees. How high up on the wall is the ladder?

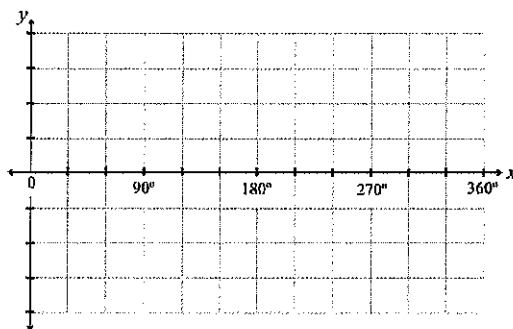
1 2 3 4 5

15. Find the period of $y = 4\cos 2x$

16. Find the amplitude of $y = -6\sin 3x$

17. Write an equation for the graph

18. Graph $y = 3\sin 2x$



1 2 3 4 5

Overall rating for trigonometry

1 2 3 4 5
